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7. The apparatus of claim 1 wherein the optical interconnect alignment mechanisms are located in both the package frame reference surface and the die reference surface.

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8. The apparatus of claim 1 wherein the optical interconnects comprise a tangential relationship with the optical interface reference plane.

9. The apparatus of claim 1 wherein a first portion of an optical interconnect is positioned on one side of the optical interface reference plane and a second portion of the optical interconnect is positioned on another side of the optical interface reference plane.

10. The apparatus of claim 1 wherein at least one of the optical interconnects contacts the die.

✓ 11. The apparatus of claim 1 wherein the optical interconnects terminate adjacent to the die without contacting the die.

20 ~~12. The apparatus of claim 1 wherein the optical interconnect comprises one of an optical fiber and optical fiber.~~

✓ 13. The apparatus of claim 12 wherein the lens optically couples the optical fiber with one or more optical micro-mechanical devices.

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✓ 14. The apparatus of claim 12 wherein the lens contacts the die.

✓ 15. The apparatus of claim 12 wherein the lens terminates adjacent to the die without contacting the die.

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16. The apparatus of claim 1 comprising one or more contact pads interposed between the die reference surface and the package frame reference surface.

5 ✓ 17. The apparatus of claim 16 comprising a contact pad on the die reference surface and a contact pad on the package frame reference surface.

18. The apparatus of claim 16 wherein the contact pad electrically couples one or more optical micro-mechanical devices with external  
10 electrical contacts.

→ 19. The apparatus of claim 16 wherein the contact pad electrically couples one or more optical micro-mechanical devices with a flexible circuit member.

15 ✓ 20. The apparatus of claim 16 wherein the contact pad electrically couples one or more optical micro-mechanical devices with contact pads located on the package frame reference surface.

20 21. The apparatus of claim 1 wherein the aperture comprises a rectangular shape.

→ 22. The apparatus of claim 1 wherein the aperture comprises a complex shape.

25 ✓ 23. The apparatus of claim 1 wherein the aperture comprises a cross-shape configured so that the distal ends of the optical fibers terminate in arms of the cross-shaped aperture without contacting the die.

30 ✓ 24. The apparatus of claim 1 comprising a tooling fixture on a rear surface of the die.

25. The apparatus of claim 24 wherein the tooling fixture comprises a tooling post.

26. The apparatus of claim 24 wherein the tooling fixture comprises a heat sink.

27. The apparatus of claim 1 comprising an encapsulating material sealing the die to the package frame.

28. The apparatus of claim 1 comprising a cover sealing the die to the package frame.

29. The apparatus of claim 1 wherein the aperture comprises a cover.

30. The apparatus of claim 1 comprising a flexible circuit electrically coupled to the die.

31. The apparatus of claim 1 comprising electric traces on the package frame, the electric traces electrically coupled to contact pads in the package frame reference surface.

32. The apparatus of claim 1 comprising:  
a flexible circuit extending across a rear surface of the die;  
one or more vias extending through the die and electrically coupling the optical micro-mechanical devices to the flexible circuit.

33. The apparatus of claim 1 comprising:  
a shoulder region adjacent to the optical micro-mechanical devices;  
electrical traces extending from the optical micro-mechanical devices to the shoulder region; and

a flexible circuit located between the shoulder region and the optical interface reference plane, the flexible circuit being electrically coupled to the traces.

5            ✓ 34. The apparatus of claim 1 wherein the package frame comprises:

one or more alignment posts positioned to engage with the die reference surface; and

10            a cavity adjacent to the alignment posts on a side opposite the aperture.

             ✓ 35. The apparatus of claim 34 comprising a flexible circuit extending through the cavity electrically couples with contact pads on the die reference surface.

15            ✓ 36. The apparatus of claim 34 comprising an adhesive located in the cavity sufficient to retain the die to the alignment posts.

             ✓ 37. The apparatus of claim 1 comprising an optical  
20 communication system including at least one packaged optical micro-mechanical device.

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